AMENDMENTS

Soil amendments are substances that influence the plant growth favorably by producing in the soil one or more of the following beneficial effects.

1. Changing the reaction, that is making the soil less acidic or less alkaline ;
2. Changing the plant nutrients in the soil from unavailable to available forms;
3. Improving the physical conditions of the soil and
4. Counteracting the effects of injurious substances

Soil amendments usually contain plant nutrients also. Agricultural liming materials, for example, supply calcium and, sometimes magnesium as nutrient element.

Types of soil amendments

Mainly there are three types of soil amendments

1. Materials for correcting acidic soil
2. Materials for correcting alkaline soils
3. Soil aggregating agents or soil conditioner s to stabilize soil aggregates and to form granular structure.

Fertilizer Control Order (FCO)

Objectives:

Laws and regulations governing the manufacture and sale of fertilizers are imperative in order to check

1. Spurious standards and adultrated fertilizers entering in to the market.
2. To ensure quantity of nutrients and quality of carriers present in the fertilizer.
3. To ensure quantity of nutrients and quality of carriers present in the fertilizer.
4. To eliminate black marketers off the market.
5. The total N,P_2O_5 and K_2O must be guaranteed in terms of percentage of each of these nutrients in a given fertilizer .The oxide expression for P and K are actually in accurate and confusing as they are based on early practices with which chemists determined the elements by ignition and weighing the oxides. The current practice is to express the elemental concentration of these nutrients.

By considering the above said objectives, the government of India passed. The FERTILIZER CONTROL ORDER [FCO] on 28th of April, 1957 in exercise of the power conferred by the section III of the essential commodities act of 1955. This order is intended to regulate the manufacture, distribution and supply of the fertilizers in India at a control cost. This has been effective from May 18th 1957. It is revised in 1985 with effect from 25-9-1985. The Government of India has delegated to powers to state Governments to implement the order.

The Government of India (G O I) also passed the Fertilizer Movement Order (FMO) on 31st December, 1960 in order to regulate the inter state movement of fertilizers and the export of fertilizers which came into force with effect from 1-1-1961.

Fertilizer Control Order [FCO] Regulations:

1. All the fertilizer manufacturer should obtain licence from the Commissioner of Agriculture ,state Government concerned for the manufacture of fertilizer and mixed fertilizers.
2. The fertilizer dealers should on renewable basis, register their dealership with the Assistant Director of the Agriculture (ADA) Regular of the division concerned in a state.
3. The terms and conditions of manufacture, distribution and sales imposed by the government should be followed.
4. Duties of inspecting officers and the dealers are specified.
5. Fertilizer specifications and kind of package are stated.
6. Method of drawing fertilizer samples for analysis in the fertilizer testing laboratories is stated.
7. Powers are vested with the FCO enforcing officials to book the cases against the fraudulent manufacturers, distributors and dealers of fertilizers.

Specifications and standards for important fertilizers [As per FCO, 1957]

1. **Urea**
    1. Moisture per cent by weight 1.0 Maximum
    2. Total nitrogen per cent by weight 44.0 minimum
    3. Biuret per cent by weight 1.50 maximum
    4. Particle size: In the form of granule the material shall pass through2.8mm and not less than 80% by weight shall be retained on 1mm
2. **SSP**
    1. Moisture per cent by weight, maximum 12
    2. Free phosphates as (P_2O_5) percent by weight 4.0
    3. Water soluble phosphates (as P_2O_5) by weight maximum 16.0

3. **MOP**

    1. Moisture per cent by weight maximum 12.00

4. **DAP**

    1. Moisture per cent by weight 1.0
    2. Total nitrogen per cent by weight minimum 18
    3. Total phosphates (as P_2O_5) per cent by weight minimum 46.0
    4. Water soluble phosphates (as P_2O_5) per cent by weight 41.6